

**CLAIMS**

1. Combined machine for the production of both plain and syrup-dressed ice cream and shakes, of the type comprising a refrigerating unit, a freezing chamber (3) cooled by the evaporator of said refrigerating unit and provided internally with a stirrer, a tank (6) for the liquid ice cream mixture supplied into the freezing chamber (3) and a dispensing hatch which closes the front end of the freezing chamber (3), characterized in that said hatch (7) comprises a cylinder (12) provided with a radial aperture (24) communicating with the freezing chamber (3) and provided downstream of said aperture (24) with a plurality of radial apertures (21, 22, 23) communicating, via pumps (208, 209, 209') arranged in between, with tanks (8,9,9') containing respectively a diluting liquid and one or more dressing syrups, a tubular piston (13) sliding in this cylinder from a first rest position in which it closes off both said apertures (21,22,23) and said aperture (24), into a second position in which it opens all these apertures; means for actuating said piston; a spindle (17) which is supported in a rotatable and axially slidable manner inside the tubular duct of said piston (13) and provided at one end with a small rotor (20) housed inside a flared compartment (112) of the end of said cylinder (12) upstream of said dispensing nozzle (28); and means for performing rotation of said spindle (17).
- 2) Combined machine according to Claim 1, in which said diluting liquid is water or milk.
- 3) Combined machine according to Claim 1, in which said pumps (208, 209, 209') are volumetric pumps.
- 4) Combined machine according to Claim 1, in which said pumps (208, 209, 209') are peristaltic pumps.
- 5) Combined machine according to Claim 1, in which said diluting liquids and/or said syrups are supplied pneumatically from said tanks (8, 9, 9') to said radial apertures (21, 22, 23).
- 6) Combined machine according to Claim 1, in which said means for actuating the piston (13) comprise a pneumatic or oil type cylinder (16) which slidably houses a piston, the stem (15) of which engages, by means of a union (14), with the end of said piston (13).

7) Combined machine according to Claim 1, in which said means for actuating the spindle (17) comprise a two-speed motor (19).

8) Combined machine according to any one of the preceding claims, comprising a selector connected to a control unit which operates the pumps (208, 209, 209'); the motor (4) of the stirrer of the freezing chamber (3); the motor (19) of the rotor (20) and the double-acting cylinder actuating the piston (13).

9) Machine according to Claim 8, in which said selector has a plurality of buttons which allow the following options:

Dispensing of a plain-based ice cream;

Dispensing of various ice cream with the possibility of choosing the syrup (9) or the syrup (9');

Dispensing of various ice cream mixed simultaneously with the two syrups (9) and (9');

Dispensing of a plain shake;

Dispensing of a shake mixed with a choice of syrup (9) or (9').

10) Machine according to Claim 9, in which, when dispensing of the plain-based ice cream is selected, the motor (4) operates the stirrer of the freezing chamber (3), the motors of the pumps (208, 209, 209') are not activated, and the motor (19) operates at low speed the spindle (17) operating the rotor (20) and the device (14, 15, 16) actuating the piston (13) raises firstly said piston above the aperture (24) and then moves it back down so as to expel outside the ice cream contained inside the cylindrical chamber (212), via the dispensing nozzle (28), assisted during this operation by the action of the rotor (20).

11) Machine according to Claims 9 and 10, in which, when dispensing of an ice cream dressed with one or more syrups (9,9') is selected, the steps according to Claim 8 are repeated, with operation also, however, of the pumps (209 and/or 209') so as to supply a dose of one or more syrups (9, 9') onto the ice cream which is being dispensed.

12) Machine according to Claim 9, in which, when the dispensing of a shake is selected, all the operations according to Claim 9 are activated, together with the fact that the pump (208) for delivering a liquid dilutant (8) (milk and/or water) is activated and the motor (19) is made to rotate at high speed.

13) Machine according to Claims 9 and 12, in which, when dispensing of a shake with an added syrup is selected, the operations according to Claim 10 are activated, together with the fact that one of the pumps (209, 209') delivering a syrup (9, 9') is also activated.

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